North/West Battery Park City Resiliency Project Frequently Asked Questions (FAQ)

May 2023

Contents

Overview

1. **What is the North/West Battery Park City Resiliency Project?**

   The North/West Battery Park City Resiliency Project is one of three resiliency projects that the Battery Park City Authority (BPCA) has advanced to protect Battery Park City from future storm surges and sea-level rise. The project area established for the location of the project's flood barrier system spans the length of the Battery Park City waterfront, from the waterside edge of neighborhood's buildings to the edge of the Battery Park City Esplanade at the pierhead line in the Hudson River, between 1st Place and the North Esplanade. Additionally, the project area includes the area necessary to connect to high ground where the Design Flood Elevation (DFE; see Q14) meets existing grade at the intersection of Greenwich Street and North Moore Street (refer to Figure 1 below). Additional points related to necessary interior drainage improvements will be added to the project area map as they are identified. The project is part of the City of New York's larger Lower Manhattan Coastal Resiliency (LMCR) project.

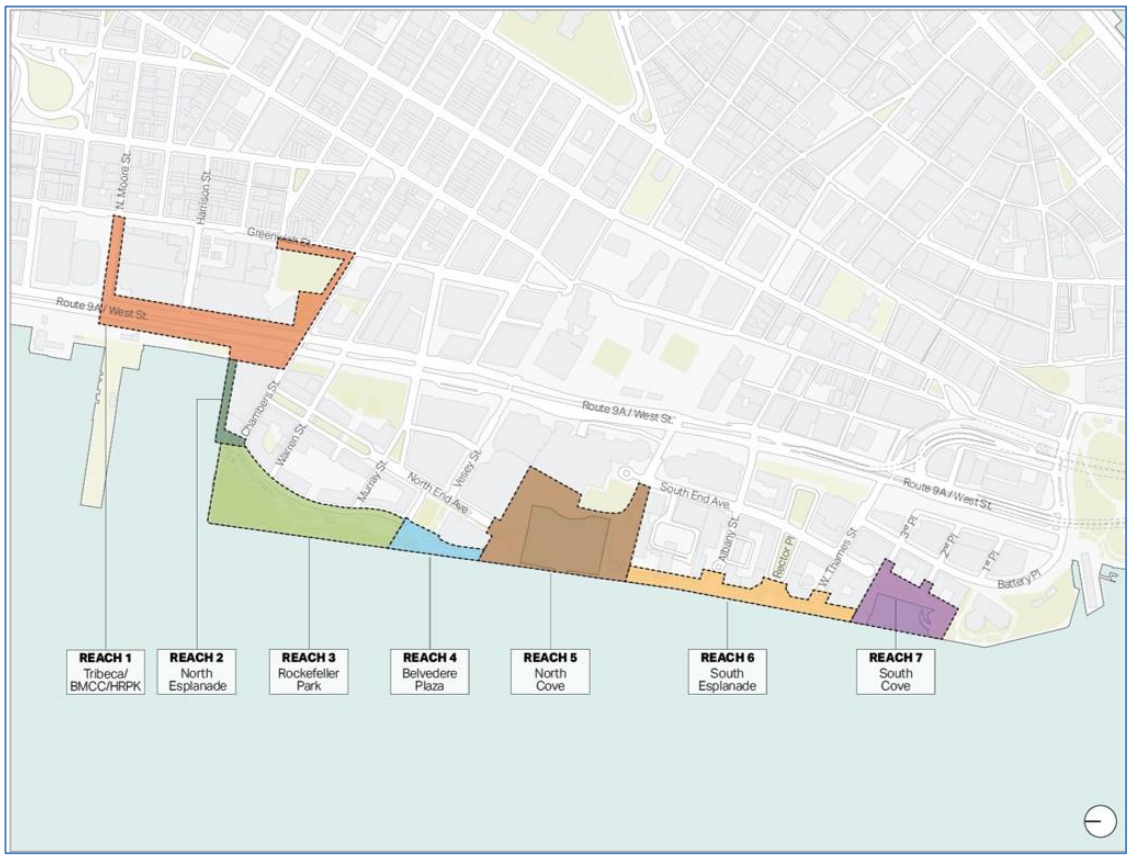
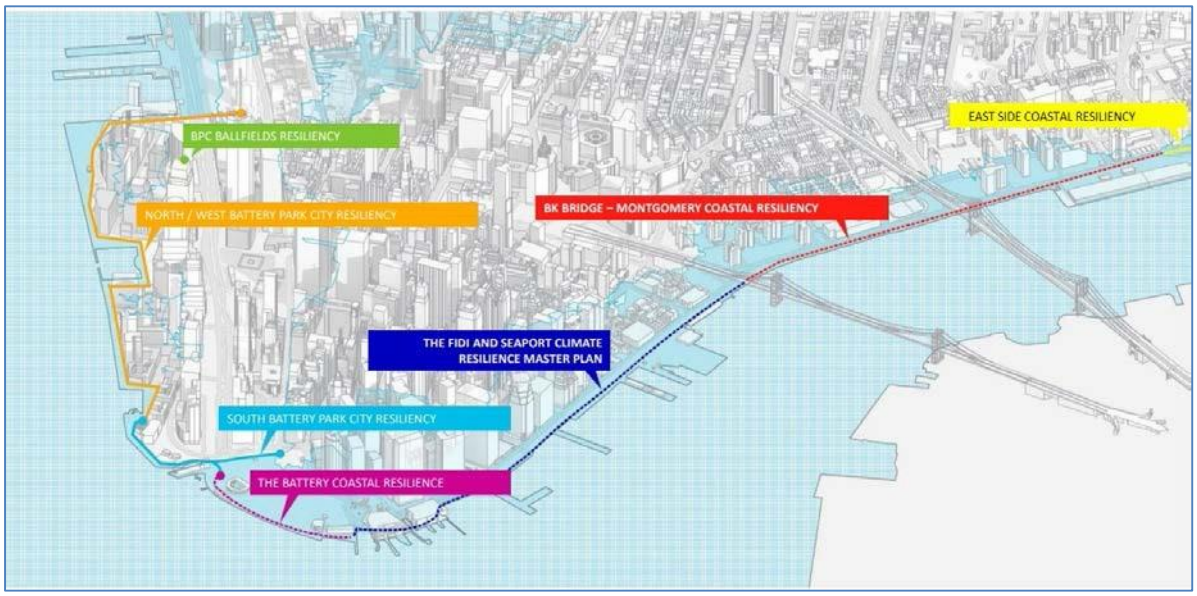


Figure 1: Project Area

2. **What is the Lower Manhattan Coastal Resiliency (LMCR) Project?**

   The Lower Manhattan Coastal Resiliency (LMCR) Project is a capital program initiated by the NYC Mayor's Office of Climate and Environmental Justice to reduce flood risk due to coastal storms and sea level rise in Lower Manhattan given its highly vulnerable location and its outsized economic impact on New York City as a whole. The LMCR Project addresses Lower Manhattan's coastline from Montgomery Street on the East Side to North Moore Street on the West Side, including Battery Park City. The goal of the program is to increase resiliency while preserving access to the waterfront by integrating with public space.

   More information can be found below:
   NYC GOV | Reducing Flood Risk and Building Resilience in Lower Manhattan



3. **What other projects are part of LMCR?**
   The North/West Battery Park City Resiliency Project is one of several resiliency projects, including the South Battery Park City Resiliency, The Battery Coastal Resilience, East Side Coastal Resiliency (ESCR), and Brooklyn Bridge-Montgomery Coastal Resilience (BMCR) projects that, both individually and as a unified system, will reduce flood risk in Lower Manhattan.

   More information can be found below:
   BPCA GOV | Battery Park City Resiliency
   NYC GOV | The Battery Coastal Resilience
   NYC GOV | Brooklyn Bridge-Montgomery Coastal Resilience
   NYC GOV | East Side Coastal Resiliency

4. **Why is the North/West Battery Park City Resiliency Project necessary?**
   The science makes clear that, due to climate change, future storms likely will be far worse than Superstorm Sandy in 2012, which resulted in 44 lives lost in New York and billions of dollars in property damage, including more than $10M to public spaces in Battery Park City alone. In response to the inescapable reality of Lower Manhattan's unique vulnerabilities to climate change, multiple New York State and New York City entities have accelerated resiliency planning efforts. BPCA is playing a critical role in providing risk reduction for Battery Park City and adjacent neighborhoods, while also tying into the larger Lower Manhattan risk reduction objectives of the LMCR.

5. **What does the North/West Battery Park City Resiliency Project protect us from?**
   The NWBPCR Project's primary goal is to reduce risk from increasingly severe and more frequent storms impacting the western and northern portions of Battery Park City, as well as part of Tribeca. Provided the South Battery Park City Resiliency Project is complete and a tie-in between the two projects is created, the NWBPCR project will provide immediate risk reduction for a 2050s 100-year storm.

6. **What other benefits will the project bring?**
   The NWBPCR Project is expected to be accredited by the Federal Emergency Management Agency (FEMA). Accreditation requires a FEMA review and verification that the flood system meets all pertinent requirements and achieves an acceptable level of risk reduction. FEMA accreditation will remove the project area from the current flood zone. As a result, owners in the area who have a federally-backed mortgage would no longer be required to obtain flood insurance.

For more information see below:
FEMA GOV | Letter of Map Amendment & Letter of Map Revision

Removing from the floodplain Battery Park City and the inland area of Lower Manhattan protected by the project provides flood protection to 62 residential condominium and rental buildings, 21 commercial buildings, and 19 public buildings, including schools, places of worship, and cultural institutions — totaling more than $6.9 billion in property value.

7. **What are the design principles of the North/West Battery Park City Resiliency Project?**
BPCA's seven design principles for the North/West Battery Park City Resiliency Project are:
   - User centric design
   - Integrated design to align resiliency and sustainability goals, programming, and enhanced user experience
   - Retention and enhancement of urban spaces and programming
   - Optimize usability of spaces in all seasons
   - Green infrastructure to address storm water flooding and urban heat island effects
   - Integrated renewable energy opportunities (e.g., outdoor lighting)
   - Ecological restoration (aquatic and upland)

8. **What is being used to estimate future flooding?**
The project's engineering team will create a coastal model that will be utilized to estimate the extent and duration of flooding associated with a 2050s 100-year storm. The model used to plan this project is an interdependent suite of modules focused on various aspects of tidal behavior during storm events. The modeling suite includes:
   - ADvanced CIRCulation (ADCIRC) models, which simulate short and long-term tide and storm surge elevations and velocities, including one developed by FEMA's Risk Assessment, Mapping, and Planning Partners (RAMPP) as part of their New York/New Jersey storm surge study;
   - MIKE 21 Hydrodynamic Analysis tool overlaid onto BPC topography to run simulations with various scenarios;
   - FEMA's most recent Flood Insurance Study report, enabling future FEMA certification and obviating the need for flood insurance upon project completion; and
   - Data provided by the National Oceanic and Atmospheric Administration (NOAA) and the New York City Panel on Climate Change (NPCC) to inform these coastal and interior drainage models and projections for sea level rise.

The models are calibrated and validated by simulating historic storm events and comparing the results to data observed by NOAA tide gauges during the event.

9. **How does this project connect to other resiliency projects in Lower Manhattan?**
The North/West Battery Park City Resiliency Project is one of several resiliency projects, including the South Battery Park City Resiliency Project (SBPCR), East Side Coastal Resiliency Project (ESCR), Brooklyn Bridge-Montgomery Coastal Resilience (BMCR), the FiDi and Seaport Climate Resilience Plan and the Battery Coastal Resilience Project, which are being implemented to provide future flood risk reduction to Lower Manhattan. All projects are part of the Lower Manhattan Coastal Resiliency (LMCR) Project, an integrated coastal protection initiative aimed at reducing flood risk due to coastal storms and sea level rise in Lower Manhattan. The LMCR Project area spans the Lower Manhattan coast and seeks to increase resiliency while preserving access to the waterfront and integrating with public space. The projects and the areas that they protect will ultimately be connected, either through linkages between the barrier systems themselves or through a combination of barrier system and topographical high point connections.

In Battery Park City, the southern end of the North/West Battery Park City Resiliency Project will connect to the northern end of the South Battery Park City Resiliency Project, a separate project that addresses coastal flooding in the South Battery Park City area. While each of these projects is subject to its own separate environmental reviews, all LMCR projects in are being coordinated to ensure they provide the same targeted level of flood protection.

10. **What happens if I live outside the flood barrier protection area?**
    BPCA is at work on two interrelated resiliency projects as part of the Lower Manhattan Coastal Resiliency (LMCR) project to protect all of Battery Park City and the Lower Manhattan coastline from the threats of storm surge and sea level rise, and is engaging with the community and local stakeholders each step of the way. While locations outside of the indicated flood barrier protection areas will not be protected by the NWBPCR project, the risk of flooding will not be increased as a result of the project. Additionally, once all of the LMCR projects are completed, all of Lower Manhattan will be better protected from the 2050 100-year storm risk.

11. **How is this impacted by the latest report/recommendation from the Army Corps of Engineers and its tentatively-selected option 3B? Has the plan for Battery Park City's resiliency projects considered the necessity of the project given the significant storm surge barriers planned by the US Army Corps? Has there been any coordination or integration of efforts among BPCA and US Army Corps concerning these two independent projects?**
    The US Army Corps NY&NJ Harbors and Tributaries Study (HATS) is still ongoing. No design has been selected nor has funding been secured. In a November 2022 public presentation, the 3B option ($35.6B and 14 years to construct) is expected to act in concert with existing flood barrier systems already constructed or in progress in Manhattan by NYC and BPCA, including NWBPCR. The BPCA projects would not be made redundant by this scenario and are, in fact, specifically contemplated by the 3B option.

Project Frequently Used Terms

12. What does the term "alignment" mean?

In this project, alignment refers to the location and configuration of the flood barrier system.

13. What is a 100-year storm event?

A 100-year storm is a severe storm with a 1% likelihood of happening in any given year. A 100-year storm on one day does not decrease the chance of a second 100-year storm occurring in that same year or any sequent year. In other words, there is a 1 in 100 or 1% chance that a storm will reach this intensity in any given year. Projections for a 100-year storm in 2050 will differ from projections for a current 100-year storm due to sea level rise, associated wave action projections, and additional intervening storm events. For more information see: USGS GOV| The 100-Year Flood

14. Do "flood events" mean high tide?

No, flood events are not the same as high tide, although they can be exacerbated if they happen at high tide. High tide naturally occurs on a daily 12-hour basis due to the gravitational pull of the moon and its relationship with the earth. It is also referred to as "tidal force." This gravitational pull not only creates high tide but also low tide. Flood events are an overflow of water onto normally dry land and are caused typically by periodic storm events. Flood events can be enhanced or increased if a storm event arrives onto a shoreline at high tide, due to already elevated water levels as part of its tidal cycle.

15. What does the term "Design Flood Elevation" (DFE) mean?

Design Flood Elevation refers to the height of flooding the project is being planned to address. The design flood elevation considers four factors:

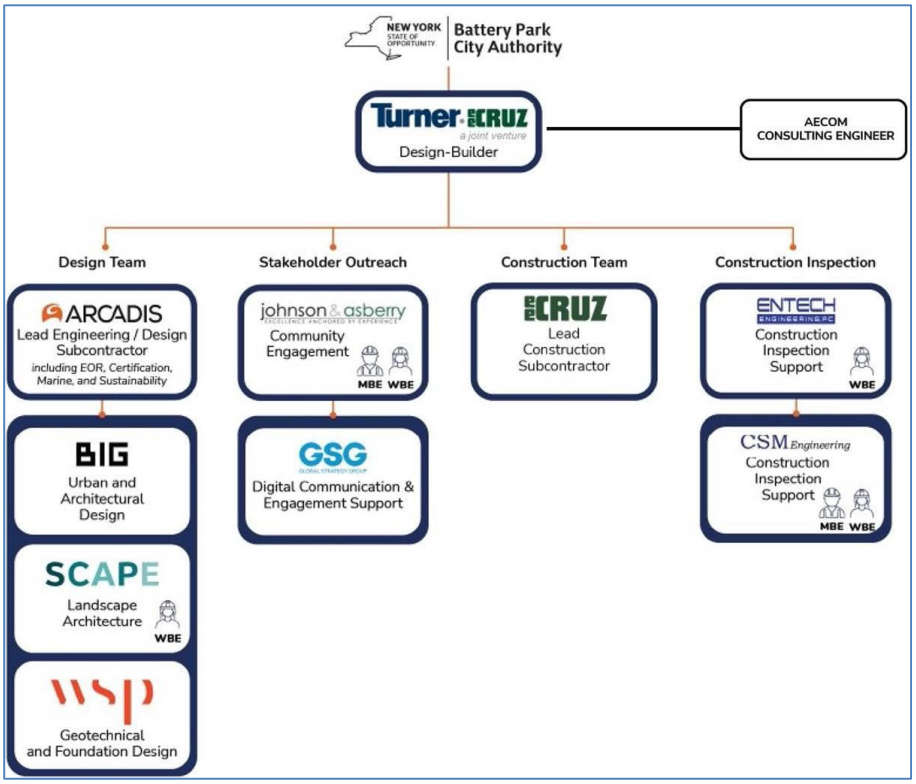
- Storm surge;
- Sea-level rise;
- Wave action; and
- Freeboard (the protective distance above the anticipated high-water line).

16. What is Height of Intervention?

Height of Intervention (HOI) is the distance between an existing elevation and the height of the proposed DFE.

17. What does Progressive Design-Build mean? How is the project team structured?

The North/West Battery Park City Resiliency Project is a Progressive Design-Build (PDB) project, which means that both design and construction services will be performed by the same team under one contract. Generally, Design-Build projects have proven to reduce cost and schedule overruns over the life of the project. Progressive Design-Build in particular is a project delivery method that provides for the Owner—in this case BPCA—to retain control over the design process for longer than typical Design-Build projects. The PDB team and consulting engineer for this project have been selected through a competitive procurement process. See below for a diagram outlining the structure of the team.



18. **What are deployable gates? Where and how will they be used?**

Flood risk reduction is addressed by a range of methods, both permanent (fixed) and deployable (activated in the event of a storm). Deployable flood gates are among the flood barrier solutions under consideration for the North/West Battery Park City Resiliency Project. Deployable gates are positioned (deployed) as needed before an emergency. A range of deployable barrier strategies will be considered for this project including flip-up gates, roller gates, and vertical gates.

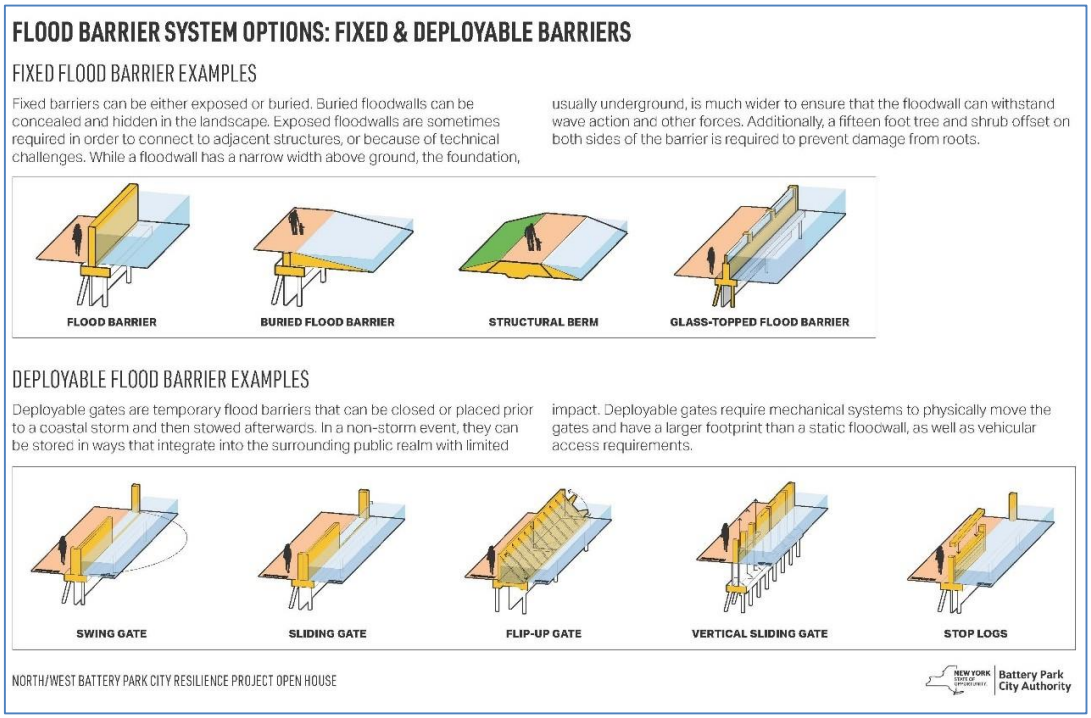


Figure 2: Fixed and Deployable Flood Measures

Project Specifics

19. Can a barrier system be built farther out into the Hudson River?

The existing western shoreline of Battery Park City generally extends to the U.S. Pierhead line established by the U.S. Army Corps of Engineers, which delineates the limits of the federal navigation channel of the Hudson River. Any proposed structure beyond the pierhead line would trigger additional and far more complex, costly, and time-consuming federal permitting requirements and could require Congressional action.

20. Will this project affect areas outside of Battery Park City?

The North/West Battery Park City Resiliency Project, when combined with the South Battery Park City Resiliency Project, is anticipated to reduce flood risk for up to 96 acres in Lower Manhattan without inducing flooding in other areas outside the flood barrier alignment.

21. What construction materials will be used in the project?

A range of materials will be used for the project and will depend on the final alignment location and configuration. Durability, tolerance for saltwater, and sustainability will be key factors for the materials selected.

22. What will happen to the existing green space, trees, and other natural elements along the project alignment?

No formal determinations have been made as to how current green spaces, trees and natural elements along the project alignment might be modified as part of the NWBPC Project. As the design evolves and BPCA receives feedback from the public, anticipated impacts to existing green spaces will be identified and discussed with project stakeholders before final design decisions are made.

23. Could the project adapt to greater sea-level rise in the future?

Yes. BPCA recognizes that it is essential for the completed project to be designed to accommodate adaptability for additional levels of protection in the future. Future adaptability is one of many criteria that will be used to evaluate potential alignments.

24. How many trees will be removed?

Minimizing tree impacts is a design goal for this project. Nevertheless, despite best intents and associated efforts, it is anticipated that a currently undefined number of existing trees will need to be removed to accommodate the construction of the project and its related components. In addition to tree impacts due to construction operations, equipment and installation, FEMA generally requires a permanent 15-foot distance between the new flood barrier system and any trees for operations and maintenance purposes. Thus, the number of trees impacted is dependent on both the alignment of the flood barrier system and the distance required by FEMA. The precise number of trees removed will come into greater focus as the alignment is refined. As developers and longstanding stewards of BPC's open spaces, the Authority will also seek to enhance BPC's green spaces by adding new trees and other native plantings wherever feasible.

25. Can the trees be relocated rather than destroying them?

The ability to successfully transplant a tree depends on a range of variables including, for example, tree age, size, health, location, and species. Where appropriate, the project team will study the feasibility of transplanting existing trees, and, if not possible, repurposing the removed materials as part of the project.

26. How many BPC features will need to be removed?

The intent of the design is to seamlessly integrate the project with BPC's existing landscape and design features to the greatest extent feasible. While alignment analysis thus far has revealed certain BPC design features that may be impacted by the project, it is not possible to discern in advance of the

next steps of the design process exactly what features may need to be modified, relocated, removed or replaced. The potential need to modify, relocate, remove or replace any specific features will part of the ongoing design process and continuing dialogue with the community.

27. **How many playgrounds will be removed or inaccessible for a number of years?**
The preliminary preferred alignment currently under consideration maintains all playgrounds in the final permanent condition. Temporary construction impacts will be determined as the project design and construction phasing is progressed.

28. **Why is building an inland wall around Battery Park City the best approach to fight coastal flooding?**
The BPCA Resiliency Projects will not surround BPC with a wall. The resulting flood barrier system will be located adjacent to the waterfront in order to provide risk reduction against storm surge and rainfall events in accordance with current projections related to global climate change. The NWBPCR project will be part of a larger lower Manhattan effort to reduce the risk of coastal flooding. The preliminary preferred alignment for N/WBPCR project was selected after receiving public feedback and considering multiple project requirements and constraints.

29. **Why does BPCA need to build solid walls for the flood protection systems? Why can't we use green interventions instead?**
The best coastal protection strategy is always a layered approach that incorporates both "green" measures and structural interventions to mitigate potential storm damage. The NWBPCR design team is well-versed and experienced in the use of nature-based solutions in coastal resiliency projects, and will propose both nature-based and more traditional, "hard" flood defense structures in the project design where each is appropriate. Nature-based solutions — which include features like living shorelines, marsh restoration, and reefs — use systems or features that mimic nature to reduce coastal flood risk and provide other economic, environmental, and/or social benefits. They help adapt the shoreline to keep up with sea-level rise, minimize wave action, and prevent erosion. However, natural and nature-based solutions alone are not effective at protecting against storm surge — the primary component of the coastal flood risk threatening Battery Park City. Without some form of perimeter barrier system using structural interventions – like floodwalls — inland areas would continue to be exposed to flooding from high-intensity, low-frequency coastal storms. Additionally, while effective at retaining stormwater, trees and other forms of vegetation are often uprooted and damaged by hurricane winds and storm surges, reducing the effectiveness of green infrastructure for future storms. Most critically, natural and nature-based strategies require significant space to be effective, and many require shallow waters. The deep waters and navigation channel of the Hudson adjacent to Battery Park City, as well as the limited space on dry land, do not allow for solutions like these to be implemented at the scale required to be effective for large, infrequent storm events sought to be addressed through this project.

That said, BPCA seeks to enhance habitats and expand green infrastructure for stormwater management where feasible and practicable to support these aims while still achieving the flood risk reduction goals of the project.

30. **How will existing views be impacted?**
If the detailed coastal modeling determines the final floodwall elevations to be similar to the current wall heights, the views should be similar in most areas. More substantial visual impacts are expected at street ends during periods of active storm preparation and deployment where flood gates will be necessary to provide a continuous line of defense.

31. How will the schedule impact residents?

The construction schedule and phasing plan for the project will be informed by the designs that are developed over the coming months, along with phasing objectives that will prioritize, among other things, the minimization of the extent of local community impacts at any given point in time. During the design phase of the project, there may be modest, scattered and short-term closures of public spaces to accommodate necessary field investigations. Construction phasing and staging plans will be part of the ongoing dialogue with the community as design progresses throughout 2023 and into early 2024. Though construction will require partial and/or full closures of certain public spaces in Battery Park City for specific periods during construction, we will endeavor to limit these closures to the extent feasible and will communicate those impacts promptly and clearly, in advance, with our partners at Manhattan Community Board 1 (CB1).

32. Where can we see details of the costs and how this work will be paid for? Where are details of the selection process for design and construction teams, advisors etc.? i.e. RFP submissions, scoring, disclosure of key individuals, conflicts of interest etc. Is federal funding considered and if not then why not please?

As the project has not yet been designed, cost detail is not yet available. After a preliminary design is formulated, a budget estimate will be developed. As noted above in response to Question 1, it is anticipated that the project will be financed by the Authority's issuance of bonds. Though the Authority certainly would be receptive to the possibility of viable alternative funding sources, applicable guidance related to the potential for award of federal funds for our resiliency projects suggests that the projects would be deemed ineligible for federal funding since , given that both a sufficient existing revenue stream and an existing finance structure exist to pay for the project, it would not be positioned to successfully compete for federal funding against projects for which funding alternatives are unavailable. Pursuing the project using the Authority's financing capabilities enables the work to move forward expeditiously, at no additional cost to residents and property owners of Battery Park City.

The selection of both the Progressive Design Build Joint Venture and the Consulting Engineer for the project were conducted through thorough, public solicitations and the selections were discussed at BPCA Board meetings in 2021 and 2022. Information about these solicitations is also available on the BPCA website.

33. What are the next steps for this project?

The next steps for the project include the following:
BPCA has selected Turner and EE Cruz, a Joint Venture along with Arcadis, Bjarke Ingles Group (BIG) and Scape as the Progressive Design Build Team. The team has embarked on an extensive schedule of public engagement beginning in Fall 2022.

In early 2023, BPCA anticipates deciding on a preferred alignment and engaging with the community through a series of design meetings and workshops focused on various sections of the project area. When will the project be complete?

The completion date is currently planned for 2027. The construction duration is expected to be three years.

34. How can the community learn more about and give feedback on the project?

BPCA will continue to provide opportunities for the public and stakeholders to provide input on the proposed project and will consider such input during project planning. For example:

In February and March 2023, BPCA hosted in conjunction with Manhattan CB1 a series of "reach-specific" public workshops at Stuyvesant High School, where more than 100 attendees sat side by side the architects and engineers to discuss, inquire, and provide feedback on the requirements and options for protective measures to be designed for each section of the NWBPCR Project.

Later this spring, BPCA will also host Public Meeting #5 to discuss the feedback received to date, including from the recent reach-specific workshops, as the NWBPCR reaches its 30% design milestone. Additional public meetings and sessions will follow.

Next fall, BPCA will also hold a public hearing on the Draft Environmental Impact Statement, though note that, per the statute, that meeting's format will be different than other public sessions associated with BPC's resiliency projects.

Through the duration of the project's design development, you can also send questions to nwbpcrinfo@bpca.ny.gov or via mail to Claudia Filomena, 200 Liberty Street, 24th Floor, New York, NY 10281.

Project information and recordings from previous public meetings are available at: https://bpca.ny.gov/nwbpcr/.

Reach 1 – Tribeca/West Street Crossing

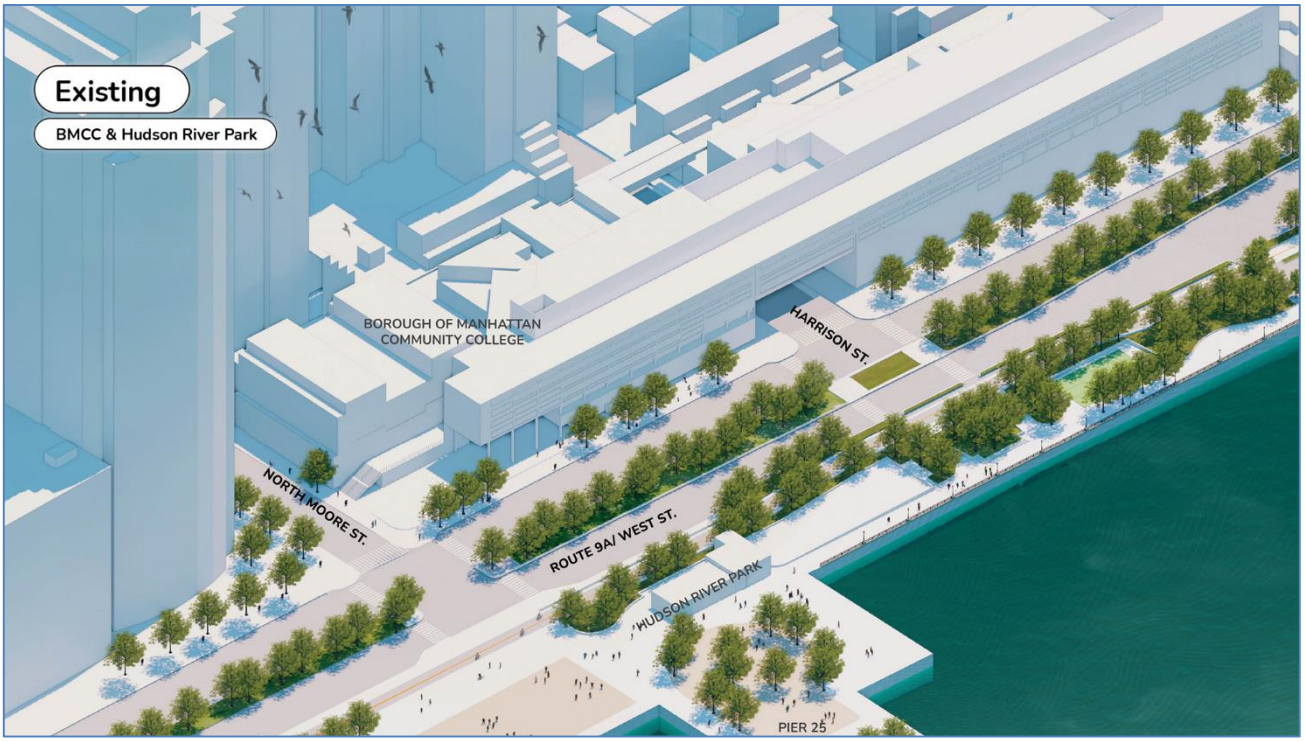


Figure 3: Reach 1 Existing Conditions

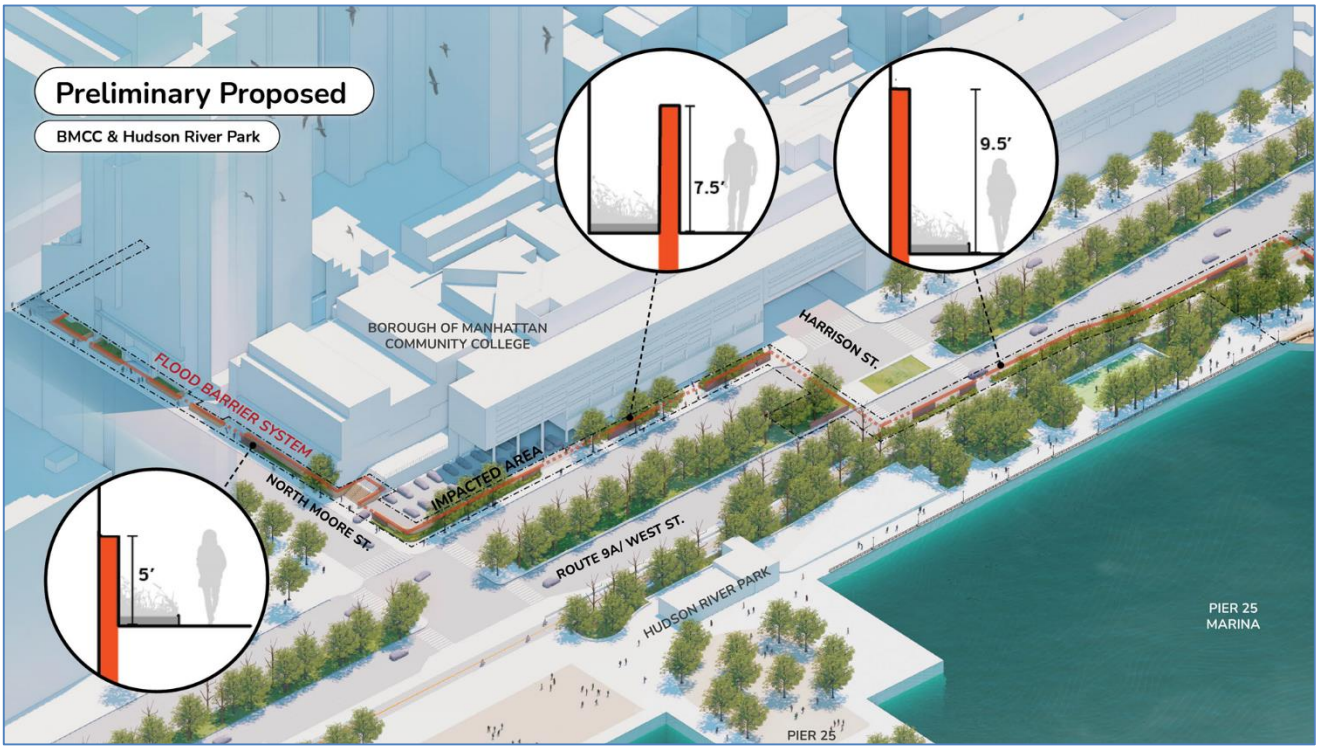


Figure 4: Reach 1 Preliminary Proposed

Reach 2 – North Esplanade

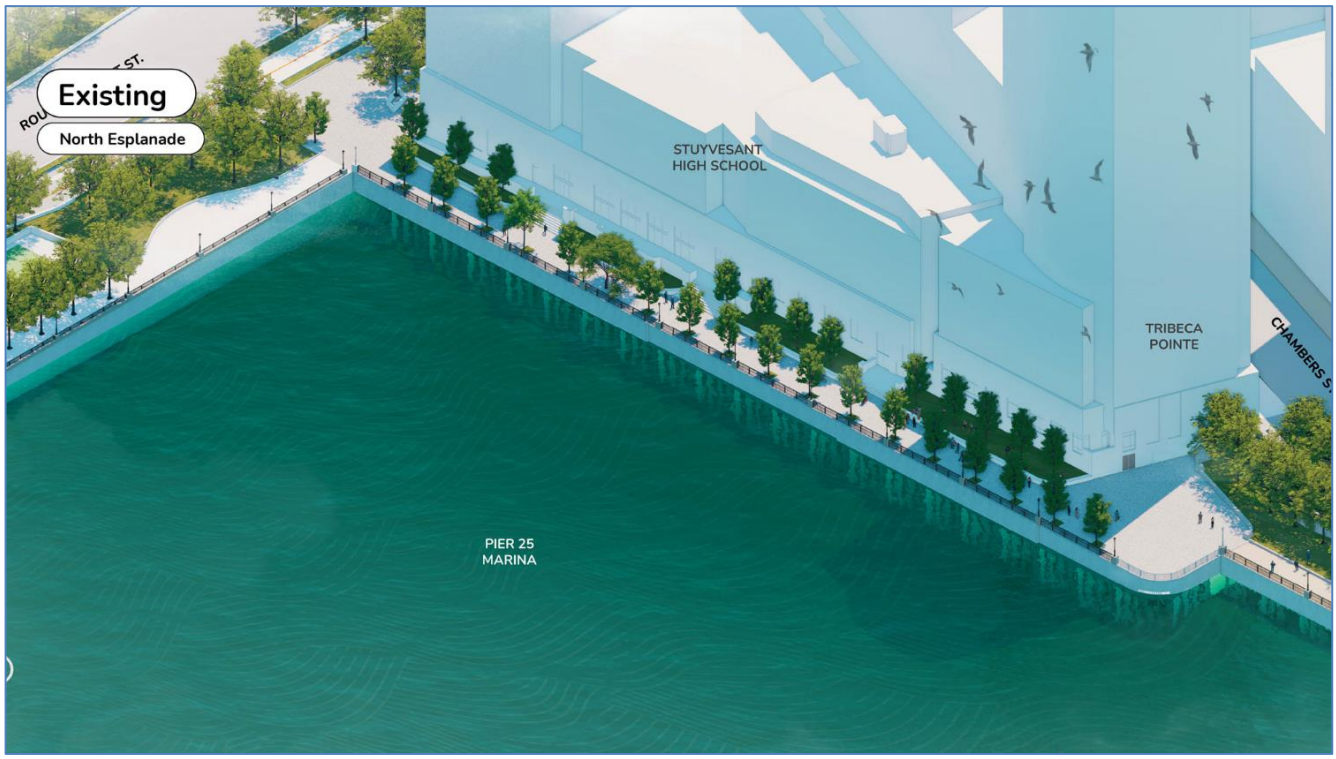


Figure 5: Reach 2 Existing Conditions

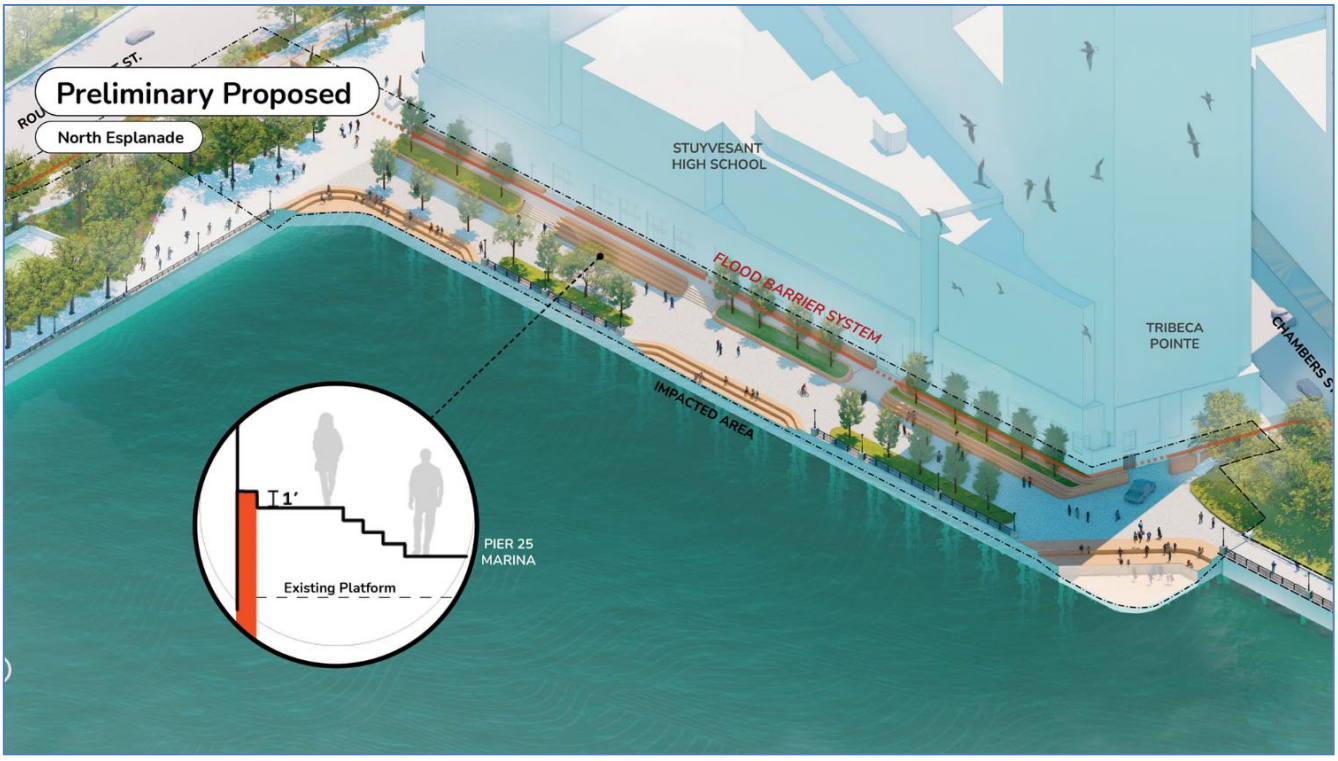


Figure 6: Reach 2 Preliminary Proposed

Reach 3 – Rockefeller Park

Figure 7: Reach 3 Existing Conditions

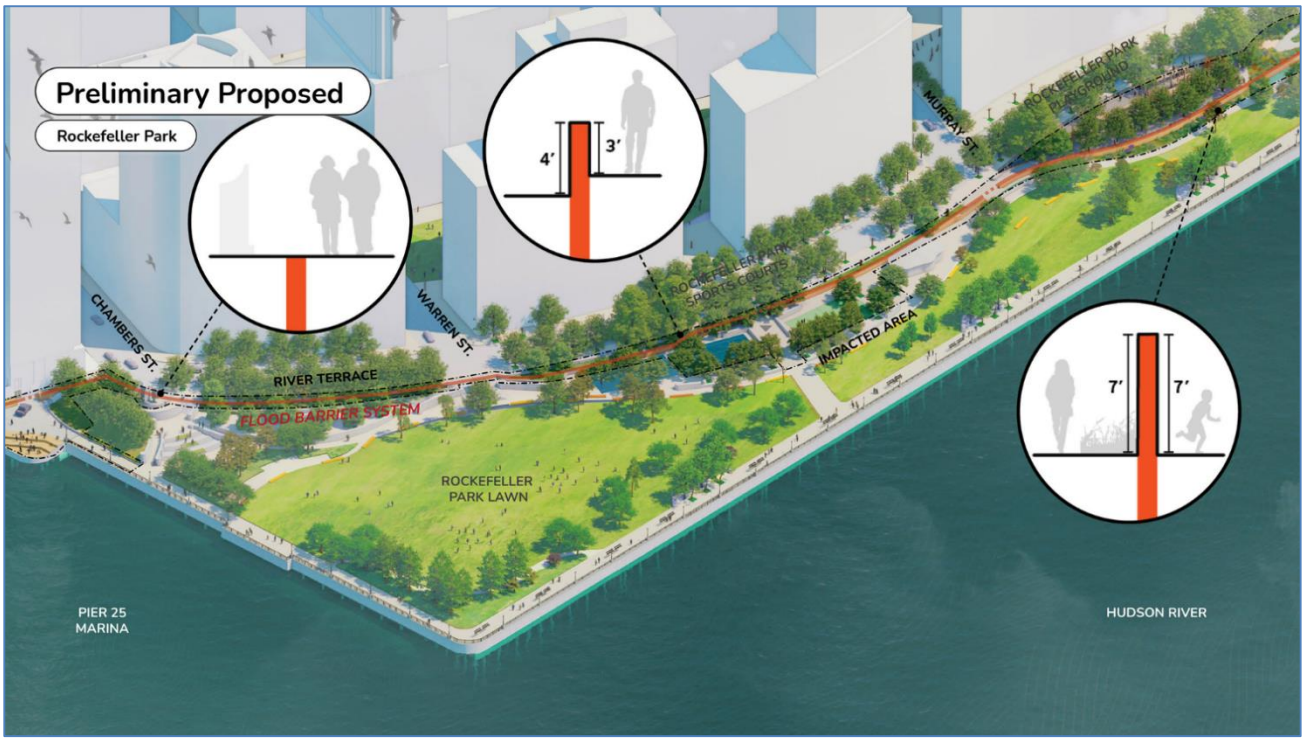


Figure 8: Reach 3 Preliminary Proposed

1. **Why isn't BPCA using the same approach to Wagner Park for SBPCR as what's being pursued for Rockefeller Park for N/WBPCR, and building the flood alignment inland from the water rather that requiring the reconstruction of the entire park?**

   BPCA has adopted and applied the same purpose, objectives and design approaches to SBPCR, which includes Wagner Park, and N/WBPCR, which includes Rockefeller Park. The consistency of principles and approaches notwithstanding, different localized design responses applicable to Wagner Park and Rockefeller Park are inevitable given the conditions that exist within and around these two very different parks.

   Though an alignment has not yet been selected for N/WBPCR, Rockefeller Park's design constraints and opportunities are quite different from those that exist at Wagner Park. Conversely, the context and site conditions at Wagner Park have created design challenges and considerations that do not present themselves in the same way, if at all, at Rockefeller Park. As a result, an inland alignment similar to the one under current consideration for Rockefeller Park was neither feasible not prudent for Wagner Park. As discussed in greater detail below:

   - Wagner Park's narrow and small footprint, topographic features, and exposed location vis-à-vis the open expanses of New York Harbor make it less accommodating of an inland alignment -- and the associated extent of flood and wave force damage – than is the case at Rockefeller Park, which is wider, prone to slightly less severe wave action, and slopes gradually upward to its inland edge;
   - The Wagner Park Pavilion, which is not resilient to projected storm surge and cannot reasonably be made a part of the needed flood barrier system, posed design challenges not present at Rockefeller Park;
   - There is an existing wall at a higher elevation along the eastern border of Rockefeller Park that could be adapted to provide flood mitigation benefits without significant programmatic and design changes to the park, whereas in Wagner there was no alternative for an inland alignment – using either passive or deployable measures -- that met the project's resiliency requirements without significant changes to the design of the park or disruption of its programming and use during construction.

Reach 4 – Lily Pond Area

Figure 9: Reach 4 Existing Conditions

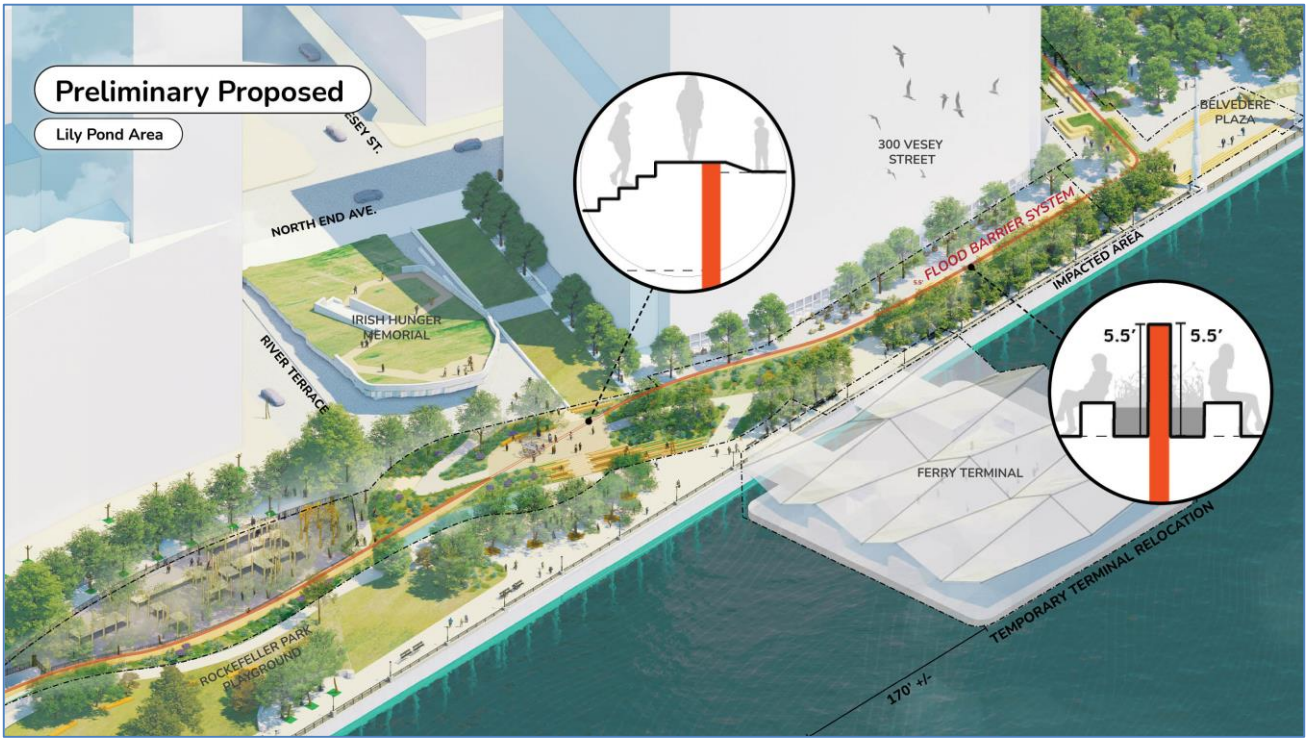


Figure 10: Reach 4 Preliminary Proposed

2. **Could the ferry just be moved away from the shore, with longer pathways that can land passengers where there isn't construction, rather than fully relocated?**
   The potential temporary relocation options for the ferry terminal are still under review. However, note that the potential movement of the ferry terminal is restricted by the federal permit that defines its allowed location within a 700 foot by 200 foot area north of North Cove. Relocation of the terminal outside of that designated area will require Congressional action. In addition, the location of the ferry terminal is subject to

ongoing operational coordination discussions with the Port Authority of New York & New Jersey (PANYNJ) and Brookfield.

3. **Why does Rockefeller playground need to be rebuilt? Couldn't the wall pass behind it?**
   Based on public comments, the alignment in the area of the playground will be studied further as part of the initial design process to evaluate whether an alignment that does not require playground reconstruction is practicable. Regardless of the final alignment location, and in response to public comments, the design team is also studying the possibility of maintaining the playground at its existing elevation and not elevating it as previously considered.

Reach 5 – North Cove

Figure 11: Reach 5 Existing Conditions

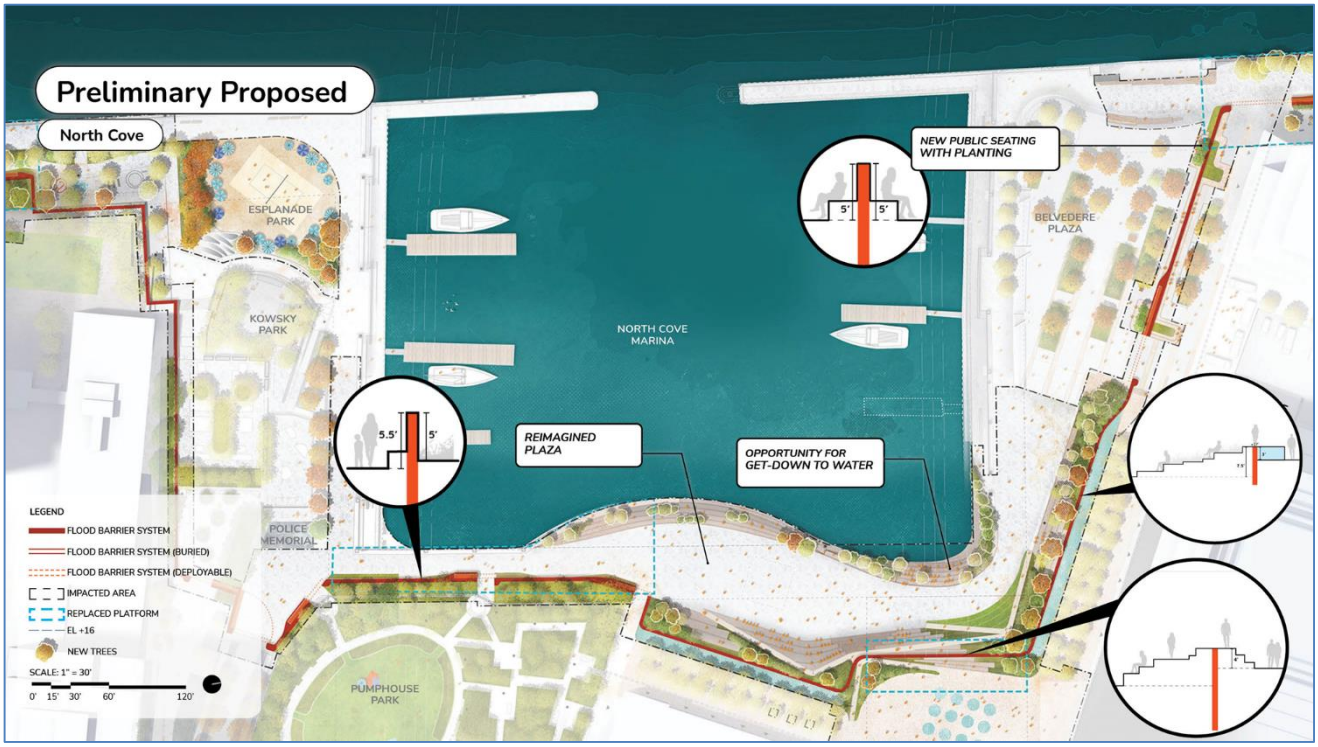


Figure 12: Reach 5 Preliminary Proposed

4. **How can universal accessibility be improved in North Cove?**
   Response: Opportunities to achieve ADA compliance as well as improve universal access are being explored as part of the design process and are a priority for the team.

Reach 6 – South Esplanade

Figure 13: Reach 6 Existing Conditions

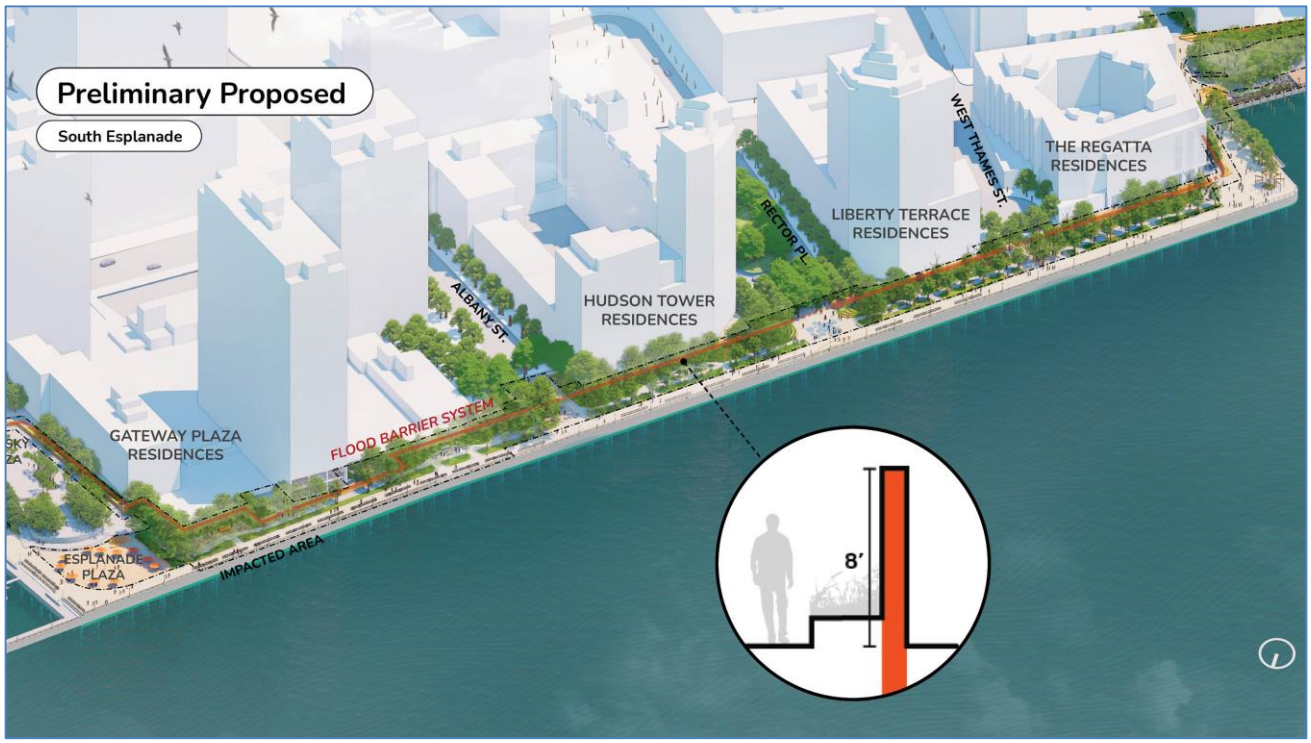


Figure 14: Reach 6 Preliminary Proposed

Reach 7 – South Cove

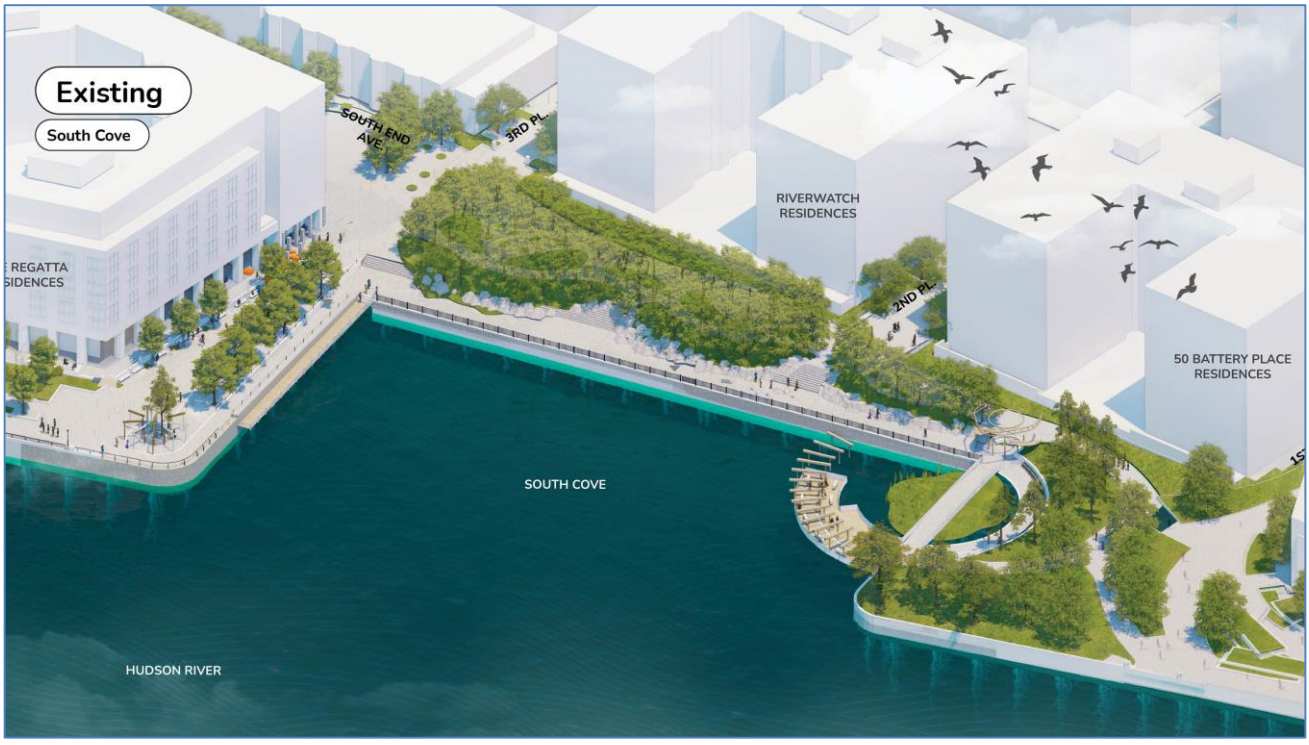


Figure 15: Reach 7 Existing Conditions

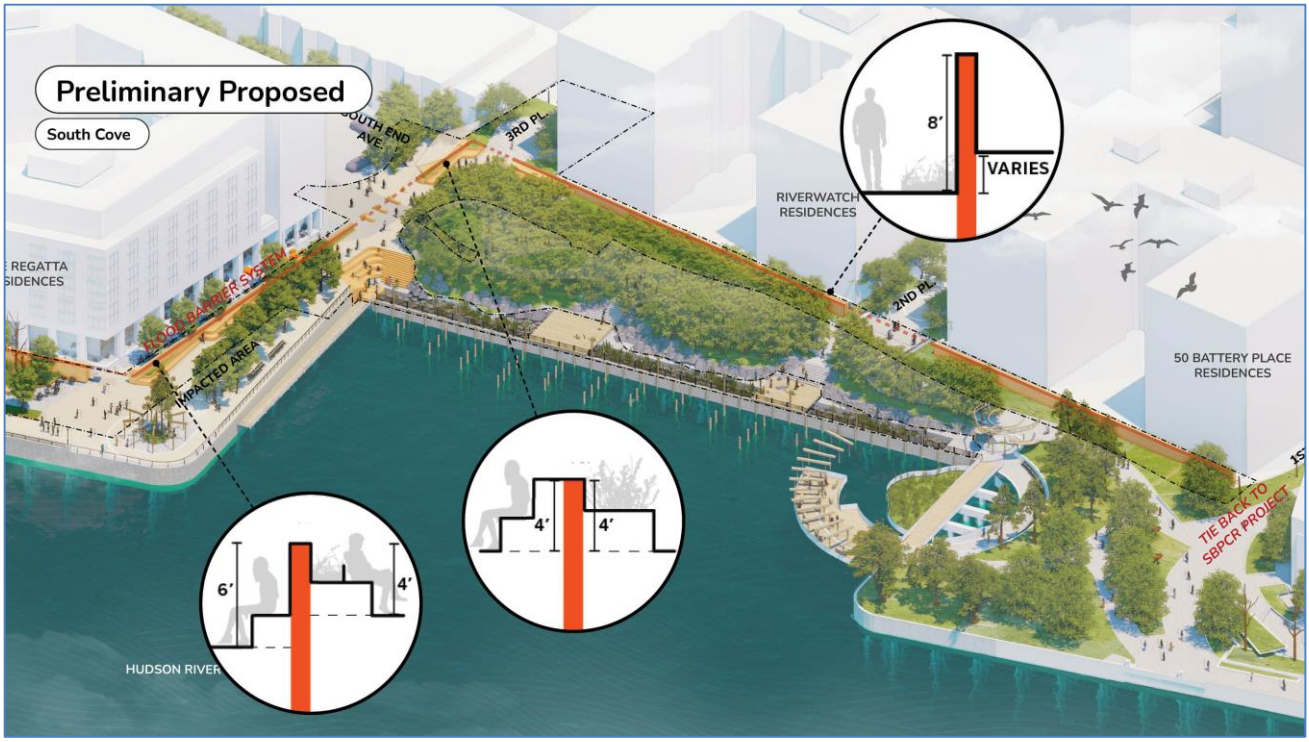


Figure 16: Reach 7 Preliminary Proposed